Star

WIND

- Instrument -

Installation and Operation Manual

English

Introduction

Thank you for choosing Star Wind instrument. We are convinced that you will appreciate all the valuable information either you are a cruiser or a racer. It is important that you are following this instruction regarding installation and operation.

This manual is written for Star Wind instrument
Edition: January 2002

1 Part specifications

Star Wind is delivered with all parts for mounting. Check prior to installation.

Wind instrument complete with transducer

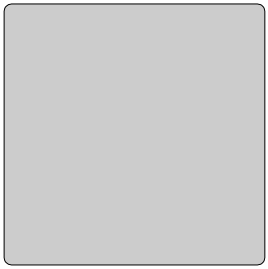
Qty.	Description	Reference
1	Instrument, Star Wind	1
1	Instrument front cover	2
1	Drill template	3
1	Installation and user manual	4
1	Warranty card	5
1	National distributors list	6
1	Power cable, red and black, 3 m (9 ft)	7
5	Extra wire protectors, 0,25 mm (1/100”)	8
5	Extra wire protectors, 0,75 mm (1/32”)	8
4	Mounting screws for the instrument	9
4	Round rubber covers	9
1	Tube of silicon grease	9
1	Connection cover	9
2	4-pol screw terminal	9
1	Wind transducer Nexus	10
1	Mast top cable. 25m (83 ft)	11
3	Mounting screws for mast bracket	12
1	Mast head bracket	13

Registering of this product

Once you have checked that you have all the listed parts, please take time to fill in the warranty document and return it to your national distributor.

By returning this document, it will assist your distributor to give you prompt and expert attention, in the event of your experiencing difficulties with this product. Keep your proof of purchase. Also, your details are added to our customer database so that you automatically receive new product catalogues as and when they are released.

1



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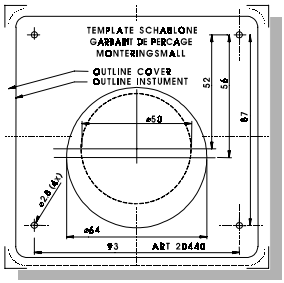

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Star
WIND

INSTALLATION and
OPERATION MANUAL

4

Star
WARRANTY
CARD

NATIONAL
DISTRIBUTORS

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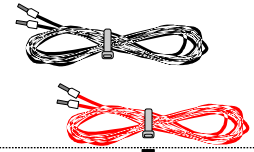

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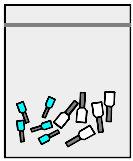

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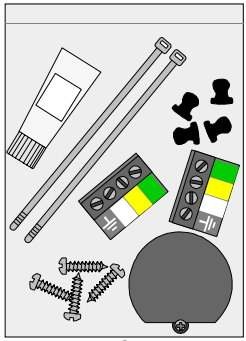

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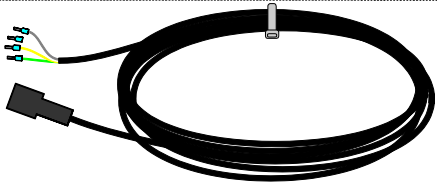

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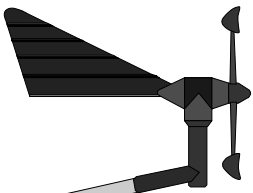

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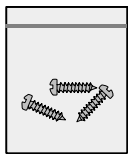

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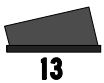

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2 Installation

- **The installation includes 6 major steps:**

1. Read the installation and operation manual.
2. Plan where to install the transducers and instruments.
3. Run the cables.
4. Install the transducers and instruments.
5. Take a break and admire your installation.
6. Learn the functions and calibrate your system.

Before you begin drilling ... think about how you can make the installation as neat and simple as your boat will allow. Plan where to position the transducers, Server and instruments. Think about leaving space for additional instruments in the future.

- **A few "do nots" you should consider:**

– Do not cut the cables too short. Allow extra cable length at the Server so it can be disconnected for inspection without having to disconnect all attached cables.
– Do not place sealant behind the display. The instrument gasket eliminates the need for sealant.
– Do not run cables in the bilge, where water can appear.
– Do not run cables close to fluorescent light sources, engine or radio transmitting equipment to avoid electrical disturbances.
– Do not rush, take your time. A neat installation is easy to do.

- **The following material is needed:**

Wire cutters and strippers.
Small and large Philips and small flat head screw driver.
Hole saw for the instrument clearance hole 63 mm (2½").
2.8 mm ($^{7}/_{64}$") drill for the mounting holes in wood.
3.2 mm ($^{1}/_{8}$") drill for the mounting holes in fibre glass.
Plastic cable ties

If you are doubtful about the installation, obtain the services of an experienced technician.

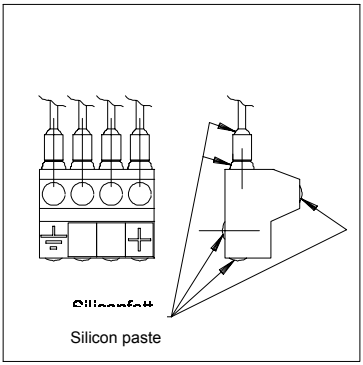
The warranty is not valid if you have damaged the instrument by drilling through the front mounting holes.

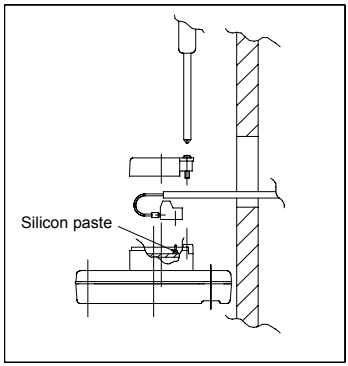
2.1 Installing the instrument

- Place the adhesive drill template on the desired location for the instrument. Drill the 4 screw holes using a 2.8 mm ($^{7}/_{64}$") drill for wood or 3.2 mm ($^{1}/_{8}$") for fibre glass. Use a 63 mm (2½") hole saw to machine the clearance hole for the instrument connection socket. Remove the template.

Note: Never drill through the instruments 4 mounting holes as the gaskets may be damaged and thus cause leakage. The warranty is not valid for damage caused by drilling through the mounting holes.

- Run the cable from the Mast head unit to the instrument.
- Cut the cable to length. Peel off about 35 mm (1,4") of the cable insulation. Remove about 6 mm (1/4") from the 3 isolated wires (the 4th wire is an earth / screen). Attach the 4 cable protectors to the wires using a pair of flat pliers.
- Connect the 4 cable protectors to the 4-pole jack plug as shown. Apply silicon paste on all locations as shown.





Note: Must be done to avoid corrosion.

- Apply silicon paste to the instrument connection pins at the back of the instrument. Press the jack plug onto the instrument pins. Press down the cable in the cable leads. Mount the connection back cover with the screw.
- Mount the instrument in the pre-drilled position.

Note! Use all 4 screws, and tighten the screws (in cross pattern) so the gasket will be evenly compressed to 1/3 of its original thickness.
Very important for a correct sealing to avoid leakage!

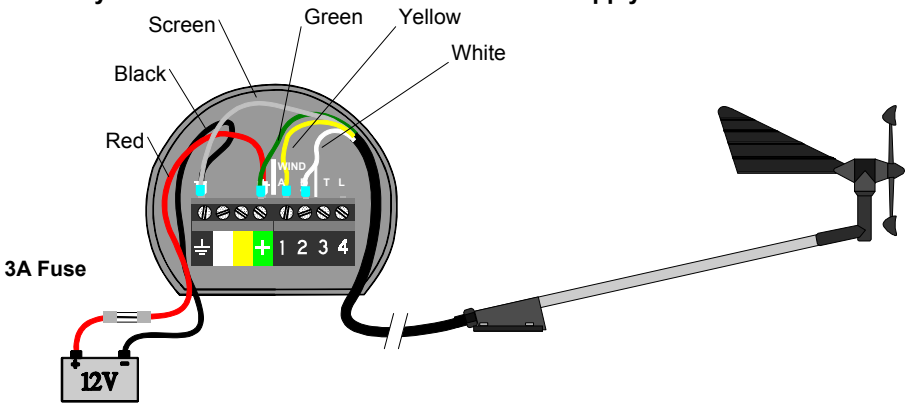
- Press on the 4 rubber caps to seal and hide the mounting screws.

Your instrument installation is done!

2.2 Installing cable

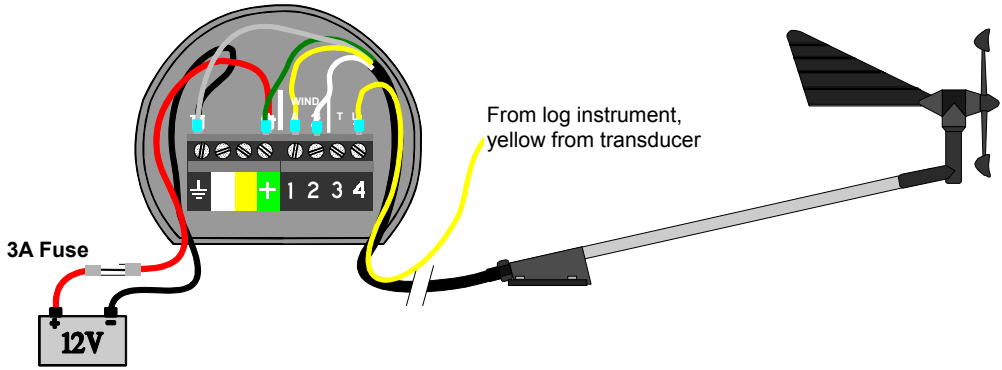
The power cable is connected via a 3A fuse from the battery or at the boats fuse panel and direct to the instrument or Server. One red and one black power wire is included.

Always connect a 3 AMP fuse between Power supply and instrument.



2.3 Connection of log transducer

If you have an other log instrument i.e. a Star log or Star Set, you may connect the single log pulse wire from that instrument to the Wind instrument terminal 4.



3 Operation

3.1 About this manual

- Each time a push-button are referred to in this manual, the push-button name will appear in **bold** and CAPITAL letters, e.g. **MODE**.

- Unless otherwise stated, the push-button presses are momentary.

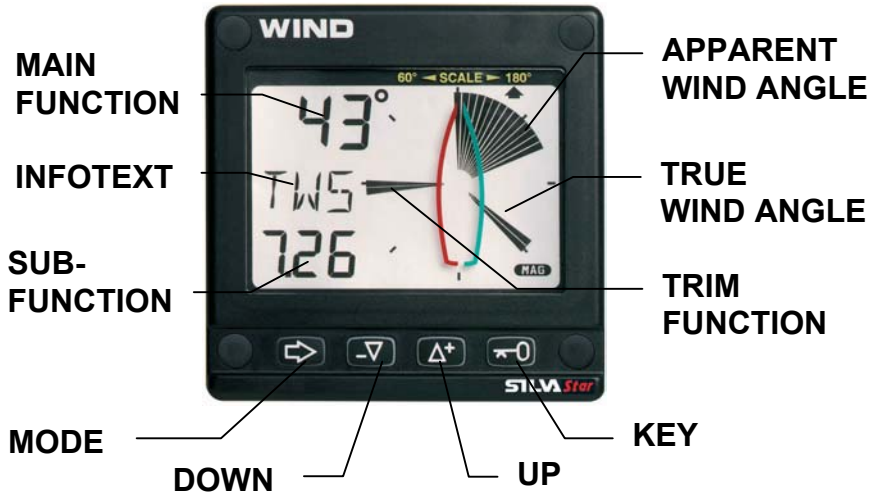
- Each time a function is mentioned in the text, it will be in brackets and in the same format, where possible, as displayed, e.g. [AWA].

- This manual has been written to be: Compatible with Wind instrument from software version 1.0.

- All functions followed by the text **option** is not valid in a factory set-up instrument. See calibration to be able to display these functions.

Note!
We have put down a lot of effort in order to make this manual correct and complete. But since we continuously make our products better, some information can differ from the products functions. If you need further information contact your national distributor

3.2 How to use the 4 push-buttons



3.2.1 MODE

A press on **MODE** change the mode of the graphical display. It scrolls in a circular pattern, one step for every press.

The **MODE** button is **also** used to move the cursor when in edit mode.
A press on **MODE** moves the cursor in a circular pattern, one step to the right for every press.
A press on **MODE** and **DOWN** together, back steps cursor to the preceding step.
When in editing mode a long press (>2sec) on **MODE** will escape from that editing mode.

1.1.1 DOWN

A press on **DOWN** moves to the next sub-function.
In edit mode it decreases to previous digit.

1.1.2 UP

A press on **UP** moves to the previous sub-function.
In edit mode it increases to next digit.

1.1.3 KEY

A press on **KEY** unlocks a digit to access edit mode.
When unlocked, the digits are ”active” (flashes) and can be edited by pressing **DOWN**, **UP** and **MODE** as required.
When finished editing, lock the digit by another press on **KEY**.

1.1.4 Clear

A press on **DOWN** and **UP together**, clear digits.

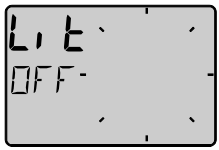

1.1.5 Calibration

To access calibration mode, press and hold **KEY** more than 2 seconds.
To return to main function mode, press **KEY** when the text return [RET] is shown.

1.1.6 Lighting

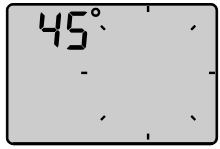
The instrument uses red back lighting for the display and the 4 push-buttons. The lighting can be set at 4 different levels.

To access the light control, press and hold **MODE** for more than 2 seconds. The flashing text [Lit OFF] will be displayed and the display will be lit momentarily.



To select between the 4 light levels, press **UP**: [LOW], [MID], [MAX] and [OFF]. To lock the selected level, press **KEY**.

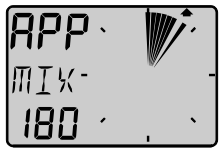
3.3 Main function



Top data is relative Wind angle, [AWA] (**A**pparent **Wind A**ngle). As an alternative to [AWA] the following can be displayed:

[AWS] (**A**pparent **Wind S**peed).
[TWA] (**T**rue **Wind A**ngle) if the log transducer is connected.
[TWS] (**T**rue **Wind S**peed) if the log transducer is connected.
To change between these functions, see C12, 5.1.2.

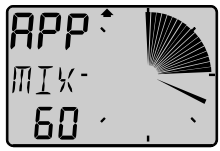
3.4 Analogue function



Change Wind scale between **180**° and **60**° with **MODE** .
Selected scale is shown with the LCD arrow pointing at scale.

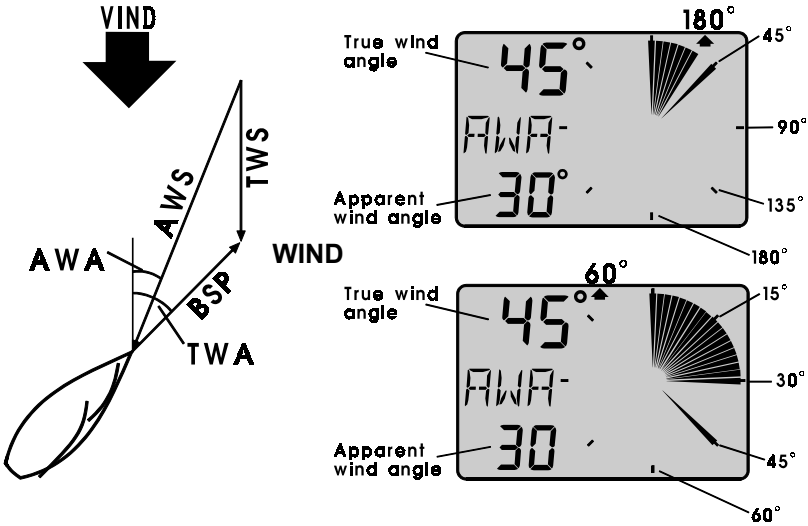
The text [APP] displays selected main function as apparent Wind angle or Wind speed.

MIX 180° The text **MIX 180°** means that both APP and TRUE Wind angle is displayed in scale 180°.



MIX 60° The text MIX 60° means that both APP and TRUE is displayed in scale 60.

The scale can be altered between 60° and 180° to get more accurate readings. At scale 180° each sector represent 5° and at scale 60° each sector represent 1 $^{2}/_{3}$°. See the example below .

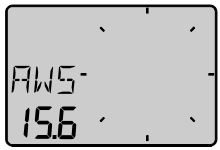


3.5 Sub-functions

Select sub-function with **UP** or **DOWN**.

Information text for the sub-function is displayed. You may also ”park” your favourite function so it will automatically be displayed after power on.
Press both **MODE** and **KEY** to ”park” the displayed function. The display will flash once to confirm that you have ”parked” the function.

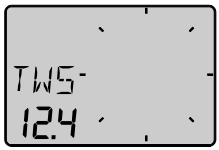
3.5.1 Apparent Wind Speed [AWS]



The text [AWS] (**A**pparent **Wind S**peed) and its value is displayed below.

The text [AWS] is toggled with the text [KTS] (KnoTS), [M/S] (Metres/S) or [BF] (Beaufort)**.**

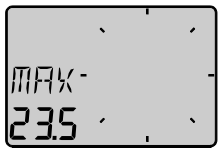
3.5.2 True Wind Speed [TWS]



The text [TWS] (**T**rue **Wind S**peed) and its value is displayed below.

The text [TWS] (**T**rue **Wind S**peed) is toggled with the text [KTS] (**K**no**TS**), [M/S] (**M**etres**/s**) or [BF] (**B**eau**F**ort).

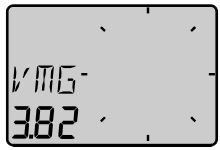
3.5.3 True maximum Wind speed



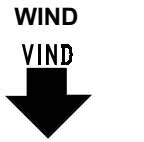
Press the **KEY** in the sub-function: [TWS] to display maximum true Wind speed. After 5 seconds the display will go back to [TWS] again.

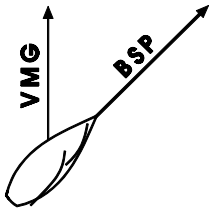
Re-set or clear the [MAX] Wind speed value by pressing **UP** and **DOWN** together or switch off the power.

3.5.4 Velocity Made Good (VMG)

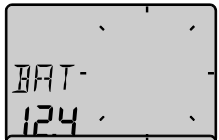


The text [VMG]
(Velocity **M**ade **G**ood**)** is displayed with the actual boat speed towards or against the Wind.
The water speed information from the log transducer is needed. The speed information must be taken from the Star log if connected. VMG = 0.0 knots when the true Wind angle is perpendicular to the boat.



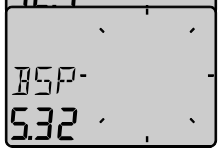


3.5.5 Battery voltage [BAT], option



The text [BAT] will display battery voltage. The voltage is measured inside the instrument and will not compensate for any voltage drop caused by installation.

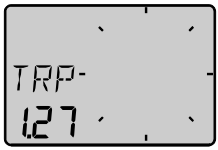
3.5.6 Boat speed [BSP], option



The text [BSP] will display boat speed (water speed). The text [BSP] will toggle with selected unit, i.e. (KTS), (KMH) or (MPH).

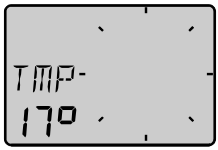
As an option, you may add or remove displaying boat speed [BSP], trip log [TRP] and water temperature [TMP]. See further under calibration.

3.5.7 Trip log [TRP], option



The text [TRP] is displayed and will show trip distance from 0.00 to 99.9 nautical miles, kilometre or miles. After 99.9, 0.00 is displayed. Clear trip by pressing **UP** and **DOWN** together.

3.5.8 Water temperature [TMP], option



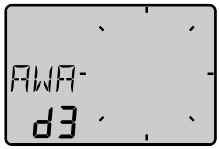
The text [TMP] is displayed with water temperature in Celsius or Fahrenheit.
This function requires a Star log transducer.

3.5.9 Trim function for optimum Wind angle or speed, option

The text [TRM] and [OFF] is displayed when this function is off. The trim function can be used as an aid to keep the correct tacking angle or to discover speed changes caused by sail or rig trimming.

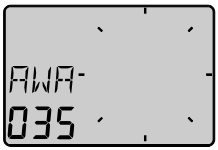
As the first example we will use [TRM AWA] (**TR**i**M A**pparent **Wind A**ngle).

To trim on Wind angle deviation, select the text:
Press **UP** and **DOWN** together, the display will flash. Select [AWA] with **DOWN** and confirm with **KEY.**



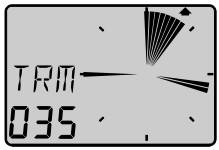
Select the level of dampening [d0-d9] and confirm with the **KEY.**

The default (or latest used) Wind angle is displayed. You may accept the proposed angle by pressing the **KEY** or enter a new Wind angle with **UP**, **DOWN** and **MODE** before confirming with **KEY.**



The entered Wind angle will be lost when power off. You may however select a default Wind angle in set-up. See C64 5.4.7.

Every time you select this function, or after power up, the pre-set value is proposed.



On the display you will see the text TRM and AWA toggling together with your Wind angle. On the graphic part you will see your reference angle as one straight horizontal segment when actual angle is equal to the pre-set angle. At the same time you will see apparent and true Wind angle.
The deviation is displayed visible upwards or downwards from the horizontal line to +/-15°. The maximum visible deviation is 15°. When the deviation is between 15° and 30° the 15° sector is lit. When larger then 30° the segment sector is blanked out.

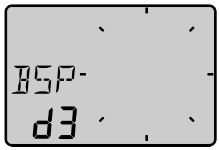
Trim on speed:

Select the trim function.
Press **UP** and **DOWN** together. Select text (BSP) by pressing **UP** and confirm with **KEY**.

Each sector represents 2°

There is a number of different ”speeds” to be used for trimming. The most common is [BSP] (Boat SPeed) and [VMG] (Velocity Made Good).

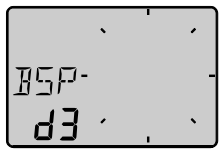
The TBS is normally calculated by use of polar diagram on PC with racing software. The value ”**T**arget **B**oat **S**peed” is transmitted through the Nexus Server on the NMEA 0183 input. The Server will then transmit TBS on the Nexus Network.
On the Wind display you will see both the digital value in % and the graphical value as a 2% variation for each segment.



You may select ”speeds” to **TRIM**, from this list:

BSP	Boat speed	**Log transducer!**
AWS	Apparent Wind Speed	
TWS	True Wind Speed	**Log transducer!**
VMG	Velocity Made Good	**Log transducer!**
OFF	Function is OFF	

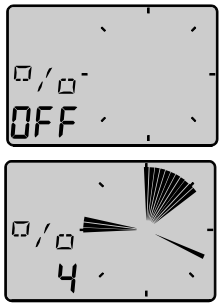
When [BSP] (or other function) is selected, the dampening [d3] is flashing. Select dampening level and confirm with **KEY.**
The text [% OFF] is then displayed to show that the function is selected, but no reference is yet set.



Press **KEY** to set [BSP] reference.

The display will now show you the text [%] toggling with text [BSP] or whatever trim you have selected.
The speed variation is expressed in % from set value.

Press the **KEY** every time you wish to set a new trim reference value. There is an option to use an external trim button to set a new trim reference. See more in the calibration.



Each sector represents 2%

4 Calibration

To get the most out of your Nexus instrument, it is important to carefully calibrate the instrument. The calibration values are stored in a non volatile memory.

To access calibration mode, press and hold **KEY** more than 2 seconds.
To select a calibration code, press **DOWN**, **UP** and **MODE** as required.
To return to normal operation mode, press **KEY** when the text return (RET) is displayed.

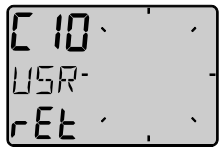
The different calibration routines are divided into five groups:

C10 - C15 = USR, User settings.
C20 - C24 = BSP, Log transducer and temp calibrations.
C50 - C64 = WND, Wind transducer settings/calibrations.
C70 - C74 = CON, Configuration.

To change a calibration value, press **KEY.**
To select calibration value, press **DOWN**, **UP** and **MODE** as required.
To lock the selected value, press **KEY.**

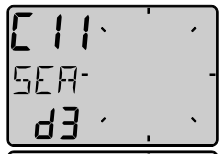
4.1 C10 User settings

To return to normal mode, press **KEY** when the text [rET] is displayed.



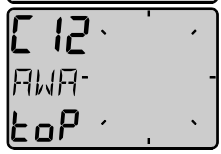
4.1.1 C11 Select the dampening

The dampening will affect Wind angle, Wind speed, boat speed and VMG. Dampening is between d0 (0s) and d9 (1'20).
To change the dampening, press **KEY** and change with **UP** or **DOWN** and enter with **KEY.**



4.1.2 C12 Select main information

Select function to be display at the top left of the LCD display. There is five options.



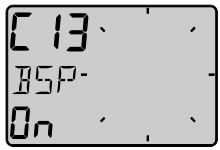
AWA Apparent Wind Angle.

TWA True Wind angle by the use of log transducer.

AWS Apparent Wind speed.

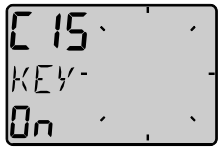
TWS True Wind speed by use of log transducer.

4.1.3 C13 Displaying boat speed, trip log and temperature, option



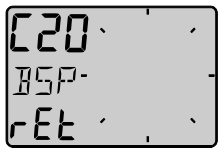
When set to OFF, the functions will be removed from the display.

4.1.4 C15 Beep when key is pressed



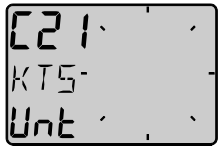
Setting **On** will make a beep at every key press, while **OFF** is silent.

4.2 C20 Calibration of Log



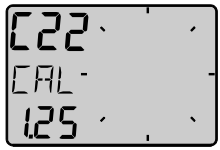
To return to normal mode, press **KEY** when the text [rET] is displayed.

4.2.1 C21 Select unit for speed



Unit for speed, knots (KTS), km/h (K/h) or miles/h (m/h).

4.2.2 C22 Calibration of log transducer



Calibration value for speed and distance (1.00 - 1.99).
Drive the boat a measured distance at normal speed.
Compare the distance with the trip counter.
Calculate the value with the following formula.

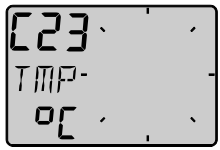
True distance from the sea chart:	T
Log trip counter distance:	L
The current calibration value:	C
New calibration value:	N

$$\frac{T}{L} \times C = N$$

If you suspect a current in the water, drive the boat in both directions and divide trip counter distance by two.

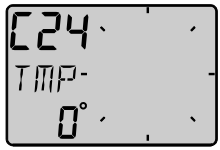
If the Star Log is already calibrated, you must enter the same calibration value as for the Star Log.

4.2.3 C23 Unit for temperature



Select degree Celsius [**C**] or degree Fahrenheit [**F**].

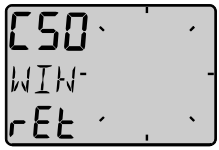
4.2.4 C24 Temperature offset



By adding a positive or [-] negative value here, it will be added as an offset before displayed as the temperature.

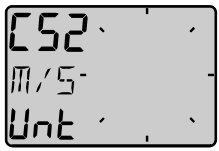
4.3 C50 Wind Settings

To return to normal mode, press **KEY** when the text [rET] is displayed.



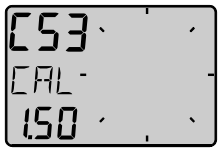
4.3.1 C52 Unit for Wind speed

Unit for Wind speed [KTS] for (KnoTS), [M/S] for (Metres/S) and [BF] for (Beaufort).



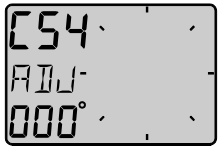
4.3.2 C53 Wind speed calibration

Do not change this factory setting.



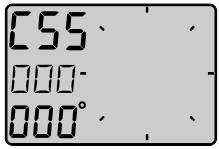
4.3.3 C54 Adjustment of Wind angle

Mast top unit misalignment adjust value or the so called ”A-fault”, makes it possible to adjust any horizontal angle.
Example: If the Wind angle is +4° when you sail/drive the boat straight into the Wind, set the calibration value in C54 to 356°.



4.3.4 C55-C62 Calibration table for the Wind transducer

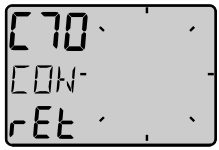
In channels C55 to C62 you set the calibration values for the mast top unit. Each mast top unit is individually calibrated for best accuracy. See the separate Wind calibration certificate supplied with each mast top unit. Each of the inter-cardinal directions are calibrated.



C55 000 000°
C56 045 045°
C57 090 090°
C58 135 135°
C59 180 180°
C60 225 225°
C61 270 270°
C62 315 315°

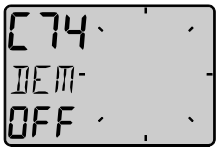
Set the calibration value according to the provided calibration certificate

4.4 C70 Configure the system



To return to normal mode, press **KEY** when the text [rET] is displayed.

4.4.1 C74 Demo mode



The Wind instrument has a built in demonstration mode. All values are simulated in this mode. It is convenient to learn the functions of the instrument by using this mode.

Every 7th second the text DEM will appear to alert you that demo mode is selected.

5 Maintenance and fault finding

5.1 Maintenance

- To clean the instrument, use only mild soap solution and rinse with water.
- Do not use detergents or high pressure washing equipment.
- At least once a year, check all your connections and apply additional silicon paste at each connection point.
- Always use the instrument cover for protection, when not in use.
- Storing transducers and instruments when not in use for longer periods: It is advisable to remove the instruments and transducers, and store them inside the boat or at home in room temperature, if possible.

5.2 Fault finding

Before you contact your Silva dealer, and to assist your dealer to give you a better service, please check the following points and make a list of:

- All connected instrument and transducers, including their software version numbers.
- Instrument software version number.

5.2.1 General

In most cases, the reason for faults in electronic equipment is the installation or poor connections. Therefore, always first check that:

- Installation and connection is made per instructions for instrument and transducers, (see 2.1).
- Screw terminals are carefully tightened.
- No corrosion on any connection points.
- No loose ends in the wires causing short cuts to adjacent wires.
- Cables for damage, that no cables are squeezed or worn.
- Battery voltage is sufficient, should be at least 10 V DC.
- The fuse is not blown and the circuit-breaker has not opened.
- The fuse is of the right type.

5.2.2 Fault - action

1. Wind: No reading [---]

- If inaccurate Wind is received, check the connections (separate through deck connection or below decks connection), are properly made.
- Make sure the transducer is aligned correctly, (see C54, 4.3.3).
- Measure with a voltmeter, at the screw terminal pin 1 and ground, and between pin 2 and ground.
- If the voltmeter shows 1.5 to 4 V DC (minimum Wind speed 3 m/s) at both measuring points, the transducer and the connections are OK.
- If the voltmeter shows 0 or 5 V DC at both measuring points, the transducer or the connections are defect. Contact you Silva dealer with this information.

2. Speed and distance functions: No reading [---]

- C13 should be ON. See 4.1.3.
- If you have a voltmeter available, you can check the condition of the transducer. When measuring with voltmeter make sure everything is connected, that the power is on and make sure the paddle wheel is rotating.
- At the back of the instrument, measure between pin 4 and ground.
- When not rotating, the value should be fixed at either about 0 or 5 V DC. When rotating very slowly, by hand, the value should flip between 0 and 5 V DC. When rotating faster, the value should average around 2.5 V DC.

Irregular values: Check the speed damping (SEA), (see C11, 4.1.1).

5.2.3 Error messages

The following error messages can appear on the display:

ERROR 10 Range error caused by bad format, e.g. 430°.
ERROR 11 Remote command that can not be performed.

If other error messages than the above appears on the Wind instrument, contact your Silva dealer.

6 Specifications

6.1 Technical specifications

Dimensions:	Wind instrument: 110 x 110 mm. (4.3x4.3 inch)
Instrument cable:	
Power supply:	12 V DC (10-16 V). The instrument is polarity protected.
Power consumption	
Instrument:	0,08 W 0.8 W (at max illumination)
Log- and temp sensor:	12 mW
Wind transducer:	50 mW
Temperature range:	Storage: From -30°C to +80°C.(-22°F to 176°F) Operation: From -10°C to +70°C. (14°F to 158°F)
Weight:	Instrument: 283 g (9.98 oz). Transducer: 293 g (10.33 oz).
Enclosure:	Instrument. Water proof

CE approval
The products conforms to the EMC requirements for immunity and emission according to EN 50 08-1,

7 Abbreviations

BSP	Boat Speed
BTW	Bearing To Waypoint
C	Celsius
F	Fahrenheit
KM	KiloMetre
KTS	KnoTS
MH	Miles per Hour
LCD	Liquid Crystal Display
LOW	LOW
MID	MID
MAX	MAX
RET	RETurn
SOG	Speed Over Ground
TRP	TRiP
-	Minus
_	Plus

8 Warranty

WARRANTY

GENERAL

All our products are designed and built to comply to the highest class industry standards. If the products are correctly installed, maintained and operated, as described in the installation and operation manual, they will provide long and reliable service. Our international Network of distributors can provide you with the information and assistance you may require virtually anywhere in the world.

Please read through and fill in this warranty card and send it to your national distributor for product registration.

LIMITED WARRANTY

The warranty covers repair of defective parts due to faulty Manufacturing and includes labour when repaired in the country of purchase. The warranty period is stated in the product manual, and commences from the date of purchase. The above warranty is the Manufacturer's only warranty and no other terms, expressed or implied, will apply. The Manufacturer specifically excludes the implied warranty of merchantability and fitness for a particular purpose.

CONDITIONS

- The supplied warranty card and receipt with proof of purchase date, must be shown to validate any warranty claim. Claims are to be made in accordance with the claims procedure outlined below.
- The warranty is non-transferrable and extends only to the original purchaser.
- The warranty does not apply to Products from which serial numbers have been removed, faulty installation or incorrect fusing, to conditions resulting from improper use, external causes, including service or modifications not performed by the Manufacturer or by its national distributors, or operation outside the environmental parameters specified for the Product.
- The Manufacturer will not compensate for consequential damage caused directly or indirectly by the malfunction of its equipment. The Manufacturer is not liable for any personal damage caused as a consequence of using its equipment.
- The Manufacturer, its national distributors or dealers are not liable for charges arising from sea trials, installation surveys or visits to the boat to attend to the equipment, whether under warranty or not. The right is reserved to charge for such services at an appropriate rate.
- The Manufacturer reserves the right to replace any products returned for repair, within the warranty period, with the nearest equivalent, if repair within a reasonable time period should not be possible.
- The terms and conditions of the warranty as described do not affect your statutory rights.

CLAIMS PROCEDURE

Equipment should be returned to the national distributor, or one of its appointed dealers, in the country where it was originally purchased. Valid claims will then be serviced and returned to the sender free of charge.

Alternatively, if the equipment is being used away from the country of purchase, it may be returned to the national distributor, or one of its appointed dealers, in the country where it is being used. In this case valid claims will cover parts only. Labour and return postage will be invoiced to the sender at an appropriate rate.

DISCLAIMER

Common sense must be used at all times when navigating and the Manufacturer's navigation equipment should only be considered as aids to navigation.

The Manufacturers policy of continuous improvement may result in changes to product specification without prior notice.

File id:

WARRANTY CARD

TO BE RETURNED TO YOUR NATIONAL DISTRIBUTOR

OWNER:

Name:____________________

Street :____________________

City/Zip Code :____________________

Country:____________________

Product name:

Serial number:

Product name	A	B	C	1	2	3	4	5	6	7
____________	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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____________	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
____________	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Date of purchase:____________ Date installed:____________

Dealers stamp:

☐ Tick here if you do not wish to receive news about future products